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NEW CLAIMS 1 TO 52

1. Method of adjusting mobility management in a mobile
10 communication network (3; 30; 330), said mobile
communication network comprising
a mobility control unit (4; 40; 320) adapted to track
location of communication units (1; 10; 310) communicating
in said mobile communication network and to control the
15 mobility management for said communication units,
said method comprising the steps of
providing (S1) said mobility control unit with
mobility information (M1) related to a communication unit,
evaluating (S2) the degree of mobility of said
20 communication unit from said mobility information related
to said communication unit, and,
when said step of evaluating indicates the immobility
of said communication unit, adjusting (S3), by said
mobility control unit, values of timer elements (15, 45,
25 16, 46) of said communication unit and said mobility
control unit to a maximum timer value or a timer value
being higher than a default timer value of said mobile
communication network, said timer elements defining a time
period of a ready state of said communication unit and/or a
30 time period for performing a location update for said
communication unit.
2. Method according to claim 1, wherein said mobility
information related to said communication unit includes a
35 specific information element indicating a periodic update
timer value and/or predefined mobility management parameter
for mobility management elements of said communication unit

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and/or said mobility control unit, said periodic update timer value and/or predefined mobility management parameter being detected in said evaluating step.

5 3. Method according to claim 1 or claim 2, wherein said mobility information related to said communication unit includes previous location information and current location information of said communication unit, said previous location information and current location information being
10 compared in said evaluating step to determine whether they are equal.

4. Method according to any of the preceding claims, wherein said adjusting step comprises a step (S80) of setting said
15 timer elements of said communication unit and/or said mobility control unit to predefined changed periodic update timer values and/or predefined changed mobility management parameters.

20 5. Method according to any of the preceding claims, further comprising a step of disabling a function of the mobile communication network which is used to force a modification of an operation state of the communication unit.

25 6. Method according to any of the preceding claims, wherein said communication unit is employed in a static device used for a M2M application.

7. Method according to any of the preceding claims, wherein
30 said mobility control unit is included in a core network control unit of the mobile communication network.

8. Method according to any of the preceding claims, wherein said mobility information related to said communication
35 unit is provided from said communication unit.

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9. Method according to any of the preceding claims, wherein said mobility information related to said communication unit is provided from a core network control unit of the mobile communication network.

10. Method according to claim 8, wherein said mobility information includes a request for setting at least one timer element to a maximum value.

11. Method according to claim 8, wherein said mobility information includes a request for deactivating at least one timer element.

12. Method according to any of the preceding claims, wherein in said adjusting step the timer elements are set to maximum settable values.

13. Method according to any of the claims 1 to 11, wherein in said adjusting step the timer elements are deactivated.

14. Method according to any of the claims 1 to 11, wherein in said adjusting step the timer elements are set to values which are incremented by a predetermined amount in comparison to the values set before (S130; S200).

15. Mobility control unit (4; 40; 320) in a mobile communication network, said mobility control unit being adapted to track location of communication units (1; 10; 310) communicating in said mobile communication network and to control the mobility management for said communication units,

said mobility control unit comprising

means adapted to receive mobility information (M1)

related to a communication unit,

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means adapted to evaluate the degree of mobility of said communication unit from said mobility information related to said communication unit, and

means adapted to adjust, when said means adapted to
5 evaluate indicates the immobility of said communication unit, values of timer elements (15, 45, 16, 46) of said communication unit and said mobility control unit to a maximum timer value or a timer value being higher than a default timer value of said mobile communication network,
10 said timer elements defining a time period of a ready state of said communication unit and/or a time period for performing a location update for said communication unit.

16. Mobility control unit according to claim 15, wherein
15 said received mobility information related to said communication unit includes a specific information element indicating a periodic update timer value and/or predefined mobility management parameter for mobility management elements of said communication unit and/or said mobility
20 control unit, wherein said means adapted to evaluate the degree of mobility of said communication unit detects said periodic update timer value and/or predefined mobility management parameter.

25 17. Mobility control unit according to any of claims 15 to 16, wherein said received mobility information related to said communication unit includes previous location information and current location information of said communication unit, wherein said means adapted to evaluate
30 the degree of mobility of said communication unit compares said previous location information and current location information to determine whether they are equal.

18. Mobility control unit according to any of claims 15 to
35 17, wherein said means adapted to adjust said timer

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elements sets said timer elements of said communication unit and/or said mobility control unit to predefined changed periodic update timer values and/or predefined changed mobility management parameters.

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19. Mobility control unit according to any of claims 15 to 18, wherein said mobility control unit is further adapted to disable a function of the mobile communication network which is used to force a modification of an operation state of the communication unit.

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20. Mobility control unit according to any of claims 15 to 19, wherein said communication unit is employed in a static device used for a M2M application.

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21. Mobility control unit according to any of claims 15 to 20, wherein said mobility control unit is included in a core network control unit of the mobile communication network.

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22. Mobility control unit according to any of claims 15 to 21, wherein said mobility information related to said communication unit is received from said communication unit.

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23. Mobility control unit according to any of claims 15 to 22, wherein said mobility information related to said communication unit is provided from a core network control unit of the mobile communication network.

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24. Mobility control unit according to claim 22, wherein said mobility information includes a request for setting at least one timer element to a maximum value.

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25. Mobility control unit according to claim 22, wherein said mobility information includes a request for deactivating at least one timer element.

5 26. Mobility control unit according to any of claims 15 to 25, wherein said means adapted to adjust the timer elements sets the timer elements to maximum settable values.

10 27. Mobility control unit according to any of claims 15 to 25, wherein said means adapted to adjust the timer elements deactivates the timer elements.

15 28. Mobility control unit according to any of claims 15 to 25, wherein said means adapted to adjust the timer elements sets the timer elements to values which are incremented by a predetermined amount in comparison to the values set before.

20 29. Communication unit (1; 10) used in connection with a mobile communication network (3; 30), said mobile communication network comprising a mobility control unit (4; 40) adapted to track location of communication units communicating in said mobile communication network and to control the mobility management for said communication units,

25 said communication unit is adapted to send mobility information (M1) related to said communication unit, said mobility information being usable by said mobility control unit to evaluate the degree of mobility of said communication unit, and

30 to set values of timer elements (15, 45) of said communication unit to a maximum timer value or a timer value being higher than a default timer value of said mobile communication network, said timer elements defining a time period of a ready state of said communication unit

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and/or a time period for performing a location update for said communication unit, on the basis of predefined changed periodic update timer values and/or predefined changed mobility management parameters received from said mobility control unit in response to the sending of said mobility information.

30. Communication unit according to claim 29, wherein said mobility information related to said communication unit includes a specific information element indicating a periodic update timer value and/or predefined mobility management parameter for mobility management elements of said communication unit and/or said mobility control unit.

31. Communication unit according to any of claims 29 to 30, said communication unit is employed in a static device used for a M2M application.

32. Communication unit according to any of claims 29 to 31, wherein said mobility information includes a request for setting at least one timer element to a maximum value.

33. Communication unit according to any of claims 29 to 31, wherein said mobility information includes a request for deactivating at least one timer element.

34. Mobility management adjustment system used in a mobile communication network (3; 30; 330), said mobility management adjustment system comprises:

a communication unit (1); and
a mobility control unit (4; 40; 320), said mobility control unit being adapted to track location of communication units (1; 10; 310) communicating in said mobile communication network and to control the mobility management for said communication units,

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said mobility control unit comprising
means adapted to receive mobility information (M1)
related to a communication unit,

means adapted to evaluate the degree of mobility of
5 said communication unit from said mobility information
related to said communication unit, and

means adapted to adjust, when said means adapted to
evaluate indicates the immobility of said communication
unit, values of timer elements (15, 45, 16, 46) of said
10 communication unit and said mobility control unit to a
maximum timer value or a timer value being higher than a
default timer value of said mobile communication network,
said timer elements defining a time period of a ready state
of said communication unit and/or a time period for
15 performing a location update for said communication unit.

35. Mobility management adjustment system according to
claim 34, wherein said received mobility information
related to said communication unit includes a specific
20 information element indicating a periodic update timer
value and/or predefined mobility management parameter for
mobility management elements of said communication unit
and/or said mobility control unit, wherein said means
adapted to evaluate the degree of mobility of said
25 communication unit detects said periodic update timer value
and/or predefined mobility management parameter.

36. Mobility management adjustment system according to any
of claims 34 to 35, wherein said received mobility
30 information related to said communication unit includes
previous location information and current location
information of said communication unit, wherein said means
adapted to evaluate the degree of mobility of said
communication unit compares said previous location

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information and current location information to determine whether they are equal.

37. Mobility management adjustment system according to any
5 of claims 34 to 36, wherein said means adapted to adjust
said timer elements sets said timer elements of said
communication unit and/or said mobility control unit to
predefined changed periodic update timer values and/or
predefined changed mobility management parameters.

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38. Mobility management adjustment system according to any
of claims 34 to 37, wherein said mobility control unit is
further adapted to disable a function of the mobile
communication network which is used to force a modification
15 of an operation state of the communication unit.

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39. Mobility management adjustment system according to any
of claims 34 to 38, wherein said communication unit is
employed in a static device used for a M2M application.

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40. Mobility management adjustment system according to any
of claims 34 to 39, wherein said mobility control unit is
included in a core network control unit of the mobile
communication network.

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41. Mobility management adjustment system according to any
of claims 34 to 40, wherein said mobility information
related to said communication unit is received from said
communication unit.

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42. Mobility management adjustment system according to any
of claims 34 to 41, wherein said mobility information
related to said communication unit is provided from a core
network control unit of the mobile communication network.

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43. Mobility management adjustment system according to claim 41, wherein said mobility information includes a request for setting at least one timer element to a maximum value.

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44. Mobility management adjustment system according to claim 41, wherein said mobility information includes a request for deactivating at least one timer element.

10 45. Mobility management adjustment system according to any of claims 34 to 44, wherein said means adapted to adjust the timer elements sets the timer elements to maximum settable values.

15 46. Mobility management adjustment system according to any of claims 34 to 44, wherein said means adapted to adjust the timer elements deactivates the timer elements.

20 47. Mobility control unit according to any of claims 34 to 44, wherein said means adapted to adjust the timer elements sets the timer elements to values which are incremented by a predetermined amount in comparison to the values set before.

25 48. Mobility management adjustment system according to any of claims 34 to 47, wherein said communication unit (1, 10) is adapted

to send mobility information related (M1) to said communication unit, said mobility information being usable
30 by said mobility control unit to evaluate the degree of mobility of said communication unit, and

to set values of timer elements (15, 45) of said communication unit to a maximum timer value or a timer value being higher than a default timer value of said
35 mobile communication network, said timer elements defining

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a time period of a ready state of said communication unit and/or a time period for performing a location update for said communication unit, on the basis of predefined changed periodic update timer values and/or predefined changed

5 mobility management parameters received from said mobility control unit in response to the sending of said mobility information.

49. Mobility management adjustment system according to
10 claim 48, wherein said mobility information related to said communication unit includes a specific information element indicating a periodic update timer value and/or predefined mobility management parameter for mobility management
15 elements of said communication unit and/or said mobility control unit.

50. Mobility management adjustment system according to any
of claims 48 to 49, said communication unit is employed in
a static device used for a M2M application.

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51. Mobility management adjustment system according to any
of claims 48 to 50, wherein said mobility information
includes a request for setting at least one timer element
to a maximum value.

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52. Mobility management adjustment system according to any
of claims 48 to 49, wherein said mobility information
includes a request for deactivating at least one timer
element.